

## Claims

What is claimed is:

1. A method for growing crystals comprising reacting potassium bitartrate with calcium chloride in a gel matrix.

5        2. The method of claim 1 wherein a cross-shaped crystal product is produced.

3. The method of claim 2 wherein said gel matrix is formed by combining potassium bitartrate with boiling water and gelatin, and cooling at a temperature of less than 65°F for more than 10 hours.

10       4. The method of claim 3 wherein the gel matrix is formed by cooling at a temperature  $\leq 60^\circ\text{F}$  for between 12 to 18 hours.

5. The method of claim 3 wherein calcium chloride is reacted with potassium bitartrate for at least fourteen days.

6. The method of claim 5 wherein the calcium chloride is reacted with potassium bitartrate at a temperature less than 65°F.

15       7. The method of claim 6 wherein the calcium chloride is reacted with potassium bitartrate at a temperature  $\leq 60^\circ\text{F}$ .

8. The method of claim 2 wherein calcium chloride is reacted with potassium bitartrate for at least fourteen days.

20       9. The method of claim 8 wherein the calcium chloride is reacted with potassium bitartrate at a temperature less than 65°F.

10. The method of claim 9 wherein the calcium chloride is reacted with potassium bitartrate at a temperature  $\leq 60^\circ\text{F}$ .

11. The method of claim 2 wherein the crystals are separated from the gel matrix.

12. The method of claim 11 wherein the crystals separated from the gel matrix are enclosed in a viewing container.

13. The method of claim 6 wherein the crystals are separated from the gel matrix and enclosed in a viewing container.

5 14. The method of claim 1 wherein the calcium chloride is in a solution of water and hydrogen peroxide.

15. The method of claim 2 wherein the calcium chloride is in a solution of water and hydrogen peroxide.

10 16. The method of claim 6 wherein the calcium chloride is in a solution of water and hydrogen peroxide.

17. A kit for growing crystals comprising:

- a. gelatin for setting up a gel matrix;
- b. potassium bitartrate for setting up in the gel matrix as a reactant; and
- c. calcium chloride for adding to the gel matrix to react with the potassium bitartrate to grow crystals.

15 18. The kit of claim of claim 17 including a crystal growing chamber for setting up the gel matrix and reacting the potassium bitartrate and calcium chloride.

19. The kit of claim 17 including a viewing container for displaying cross-shaped crystals isolated from the gel matrix.

20 20. The kit of claim 19 wherein the viewing container is a key chain.

21. The kit of claim 20 including a magnifying glass for examining crystals.

22. The kit of claim 17 wherein the calcium chloride is in a solution of water and hydrogen peroxide.

23. The kit of claim 17 further including instructions for creating a gelatin matrix and reacting calcium chloride with potassium bitartrate in the gelatin matrix to grow cross-shaped crystals.

24. A method of growing crystals comprising complexing tartrate anions with cations wherein said cations include at least one cation selected from the group consisting of  $K^+$ ,  $Ca^{2+}$ ,  $Na^+$ ,  $Mg^{2+}$  and  $Li^+$ .

25. The method of claim 24 further comprising the step of ionizing a compound prior to complexing the tartrate anions with the cations wherein said compound includes the at least one cation counterbalanced by an anion selected from the group consisting of chloride, sulfate, bromide, iodide, acetate, nitrate, and nitrite.

26. The method of claim 25 further comprising ionizing a second compound prior to complexing the tartrate anions with the cations wherein said second compound is selected from the group consisting of tartaric acid, potassium bitartrate, and dipotassium tartrate.

27. A kit for growing crystals comprising:

- a. a first compound for setting up a gel matrix;
- b. a second compound for setting up in the gel matrix as a reactant, wherein the second compound is ionizable into tartrate anions; and
- c. a third compound for adding to the gel matrix to react with the second compound, wherein the third compound is ionizable into at least one cation selected from the group consisting of  $K^+$ ,  $Ca^{2+}$ ,  $Na^+$ ,  $Mg^{2+}$  and  $Li^+$ .

28. The kit of claim 27 wherein the third compound includes an anion selected from the group consisting of chloride, sulfate, bromide, iodide, acetate, nitrate, and nitrite.

29. The kit of claim 28 wherein the second compound is selected from the group consisting of tartaric acid, potassium bitartrate, and dipotassium tartrate.

30. The kit of claim 27 wherein the second compound is selected from the group consisting of tartaric acid, potassium bitartrate, and dipotassium tartrate.